

Long-acting injectable protects against vaginal HIV transmission

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Vaginal transmission accounts for the majority of new HIV infections worldwide. Forms of pre-exposure prophylaxis (PrEP) such as vaginal gels and vaginal rings designed to prevent HIV transmission have encountered poor efficacy in human trials due to problems with adherence. In an effort to minimize obstacles to adherence and prevent vaginal HIV transmission, researchers from the division of infectious diseases at the University of North Carolina School of Medicine and collaborators from Merck demonstrated the effectiveness of a new long-acting formulation of the HIV drug raltegravir in animal models.

These results were published in the *Journal of Antimicrobial Chemotherapy* today.

"Raltegravir is a well-tolerated drug with a strong track record of use for the treatment of HIV," said Martina Kovarova, PhD, the study's lead author and an assistant professor of medicine in the division of infectious diseases. "Changing its form from an oral pill to a subcutaneous injection produced a long-acting release of the drug that can be used for pre-exposure prophylaxis."

Kovarova and her team found that two weeks after a single injection of raltegravir, animal models had the same levels of the drug in their system as humans who take PrEP orally twice a day.

After a single injection of a long-acting formulation of raltegravir was found to result in a strong suppression of viral load in both plasma and

cervicovaginal lavages, researchers used a validated model of vaginal HIV transmission to evaluate this formulation's effectiveness over a period four weeks. During that time, the long-acting raltegravir provided significant protection against multiple relevant strains of HIV that were introduced to the model in a series of high-dose challenges.

Raltegravir battles the virus well within the female reproductive tract, which has been a significant disadvantage of other drugs.

"A single injection of long-acting raltegravir may only be needed every month or every few months to provide protection against HIV infection, which could improve adherence," Kovarova said.

Victor Garcia, PhD, a co-author of the study and professor of medicine in the division of [infectious diseases](#) at the UNC School of Medicine, said, "Effective long-acting formulations for HIV prevention represent the next generation of [pre-exposure prophylaxis](#). This is a very exciting new formulation of raltegravir with great potential."

More information: *Journal of Antimicrobial Chemotherapy*, [dx.doi.org/10.1093/jac/dkw042](https://doi.org/10.1093/jac/dkw042)

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